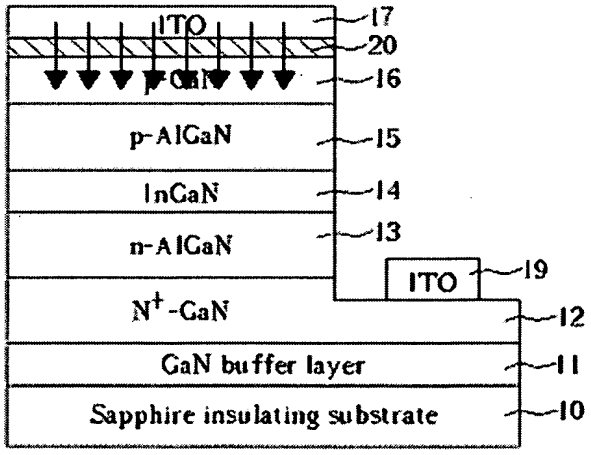
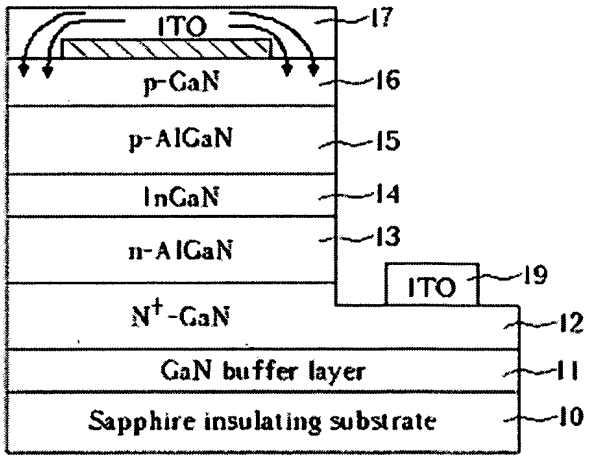
REMARKS

Regarding claim 1, it seems to the Applicants that the Examiner thinks that the n-cap layer 305, which is disclosed in the patent issued to Sugawara et al and acts as a current blocking layer, is the same as or equivalent to the reverse tunneling layer required by claim 1. We respectfully disagree with this opinion. The applicants have to emphasize that the reverse tunneling layer in accordance with the invention is different from the current blocking layer referred by the Examiner. If the reverse tunneling layer and the current blocking layer are equivalent, they must substantially have the same way, the same function, and the same effect. However, they don't have the same way because the reverse tunneling layer must have a high carrier concentration (e.g. $1.5 \times 10^{20}\ cm^{-3}$) and a very small thickness (e.g. about 20 angstroms, as described in paragraph [0013]) so that it can provide a tunneling effect (please refer to pages 97-98 and 516-536, Physics of Semiconductor Devices, Second edition) so that electrons can tunnel through the reverse tunneling layer without being blocked when a voltage is applied on the LED, and, in contrast, the current blocking layer has a thickness of 1.0 micron (col. 11, lines 2-3) and a carrier concentration of $5 \times 10^{18}\ cm^{-3}$ (col. 9, lines 3-4). In other words, the thickness of the current blocking layer is 500 times that of the reverse tunneling layer, and the carrier concentration of the reverse tunneling layer is 30

times that of the current blocking layer. Moreover, they don't provide the same function because the reverse tunneling layer provides a good ohmic contact with the electrode in direct contact therewith, and in contrast, the current blocking layer cannot provide a good ohmic contact with the electrode in direct contact therewith. Further more, the effect provided by the reverse tunneling layer is for reducing the voltage drop across the Schottky junction formed between a p-electrode and a p-type semiconductor layer, and in contrast, the effect provided by the current blocking layer is for controlling the current distribution in the active layer to achieve efficient light extraction. In the following drawing, the arrows illustrate the current flow through the reverse tunneling layer.



In contrast, in the following drawing the arrows illustrate the current flow around the current blocking layer through which no current can pass.



Hopefully, the above two drawings may help understand the difference between the reverse tunneling layer and the current blocking layer. Each of the independent claim 1 and the dependent claims 3 comprises a reverse tunneling layer that is not suggested or taught in any prior art cited by the examiner. Therefore all the claims 1 and 3 are in condition of allowance, and reconsideration of these claims is therefore respectfully requested.

The claims 4, 8, and 9 are canceled.

Regarding claim 2, Nitta discloses the p-electrode 107 formed of ITO, Al, or Ni, and the n-electrode 108 formed of Ti, Al, or Ni. In addition, it is stated that n-electrode 108 "is not always transparent to the light (Col. 5, line 48)." Therefore, it is acceptable that Nitta suggested p-electrode 107 and n-electrode 108 comprising the same metallic material, such as Al or Ni. However, it is acceptable that Nitta hinted that ITO is not used to form an n-electrode 108 because ITO is only referred to the p-electrode 107. In fact, those of

ordinary skill in the art usually think that it's easier to form a metallic n-electrode 108 than to form an ITO n-electrode 108, and no any prior art suggest that an ITO n-electrode 108 can help improve extraction of light from the LED. The applicants of the present invention found through experiments that both the p-electrode and n-electrode made of ITO help not only simply the manufacturing process but also improve extraction of light from the LED because there is some light passing through the n-electrode. The applicants now have claim 2 amended so that it's limited to requiring the p-electrode and n-electrode being made of the same non-metal material. Thereby claim 2 is in condition of allowance, and reconsideration of this claim is therefore respectfully requested.

Regarding claims 5 to 7, as explained in the above, the current blocking layer 7 is different from the reverse tunneling layer in accordance with the invention. Therefore, the patent issued to Watanabe et al cannot be used to reject claim 5 and reconsideration of claim 5 together with claims 6 and 7, which are dependent on claim 5, are therefore respectfully requested.

To fully protect the invention featuring in that both the two electrodes of the LED are made of ITO, the applicants add a new claim 10 and a dependent claim 11. Consideration of claims 10 and 11 is respectfully requested.

Sincerely yours,

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